WHAT IS CLAIMED IS:

1. A method for processing optical signals to correct for optical distortions, the method comprising:

providing a laser system, the laser system including at least an energy source and an optical system, the optical system being configured to direct an energy beam from the energy source to a target object;

maintaining the laser system in a first measurement condition;

orienting a first measurement laser beam at a first measurement angle;

sending the first measurement laser beam to a first measurement focal point at a first measurement time;

receiving a first measurement return signal in response to the first measurement laser beam;

adjusting the laser system to a first measurement setting in response to the first measurement return signal;

storing the first measurement setting and the first measurement time;

determining whether to send a second measurement laser beam to a second measurement focal point at a second measurement time; and

wherein the providing, the maintaining, the orienting, the sending, the receiving, the adjusting, the storing, and the determining are performed free from an engagement between the laser system and a laser target.

2. The method of claim 1 wherein the providing, the maintaining, the orienting, the sending, the receiving, the adjusting, the storing, and the determining are free from presence of a laser target.

3. The method of claim 1, the method further comprising

compiling the first measurement setting and the first measurement time into a database, the database comprising measurement settings of the laser system and their corresponding measurement times.

4. The method of claim 3 wherein the database is a lookup table.

5. The method of claim 1, the method further comprising

maintaining the laser system in a second measurement condition;

orienting the second measurement laser beam at a second measurement angle;

sending the second measurement laser beam to the second measurement focal point at the second measurement time;

receiving a second measurement return signal in response to the second measurement laser beam;

adjusting the laser system to a second measurement setting in response to the second measurement return signal;

storing the second measurement setting and the second measurement time;

determining whether to send a third measurement laser beam to a third measurement focal point at a third measurement time.

6. The method of claim 5, the method further comprising

compiling the first measurement setting, the first measurement time, the second measurement setting, and the second measurement time into a database, the database comprising measurement times and their corresponding measurement settings of the laser system.

7. The method of claim 6, wherein the database is a lookup table.

8. The method of claim 6, the method further comprising:

obtaining a first intermediate setting of the laser system at a first intermediate time using the first measurement setting, the first measurement time, the second measurement setting, and the second measurement time.

9. The method of claim 8, wherein the obtaining a first intermediate setting comprising:

determining a first intermediate setting using interpolation of the first measurement setting and the second measurement setting.

10. The method of claim 8, the method further comprising:

compiling the first intermediate setting and the first intermediate time into the database.

11. The method of claim 3, wherein the measurement times and the measurement settings are provided to adjust the laser system during the engagement of the laser system and the laser target.

12. The method of claim 11, wherein during the engagement, the direction from the laser system to the laser target is substantially vertical to the sea level.

13. The method of claim 12, wherein the angle between the direction from the laser system to the laser target and the direction vertical to the sea level ranges from 0 degree to 40 degrees.

14. The method of claim 1, the method further comprising
performing a first update of the database.

15. The method of claim 14, wherein the first update comprising:
maintaining the laser system to a first update condition;
orienting a first update laser beam at a first update angle;
sending the first update laser beam to the first update focal point at a first update time;
receiving a first update return signal in response to the first update laser beam;
adjusting the laser system to a first update setting in response to the first update return signal;
updating the database using the first update setting and the first update time.

16. The method of claim 15, wherein the first update is performed immediately before the engagement.

17. The method of claim 15, wherein the first update is performed during the engagement.

18. A method for predicting optical distortions, the method comprising:
sending a first measurement laser beam to a first measurement focal point at a first measurement time;
receiving a first measurement return signal in response to the first measurement laser beam;
adjusting a laser system to a first measurement setting in response to the first measurement return signal;
wherein the sending, the receiving, and the adjusting are free from an engagement between the laser system and a laser target.

19. The method of claim 18, the method further comprising:

sending a second measurement laser beam to a second measurement focal point at a second measurement time;

receiving a second measurement return signal in response to the second measurement laser beam;

adjusting the laser system to a second measurement setting in response to the second measurement return signal;

wherein the sending a second measurement laser beam, the receiving the second measurement return signal, and the adjusting the laser system to a second measurement setting are free from an engagement between the laser system and a laser target.

20. The method of claim 19, the method further comprising:

storing the first measurement setting and the first measurement time into a database;

storing the second measurement setting and the second measurement time into the database.

21. The method of claim 20, the method further comprising:

performing a first update of the database to create the updated database.

22. The method of claim 21, wherein the updated database is provided to adjust the laser system.

23. The method of claim 21, the method further comprising:

obtaining a first intermediate setting of the laser system at a first intermediate time using the updated database;

wherein the intermediate time is between the first measurement time and the second measurement time;

wherein the obtaining a first intermediate setting is free from sending a measurement laser beam, sending a update laser beam, and adjusting the laser system.

24. The method of claim 23, wherein obtaining a first intermediate settings of the laser system is free from an engagement between the laser system and a laser target.

25. The method of claim 23, wherein obtaining a first intermediate settings of the laser system is performed during an engagement between the laser system and a laser target.

26. The method of claim 23, wherein the intermediate time and the intermediate setting are stored into the database.

27. The method of claim 23, wherein the intermediate time and the intermediate setting are provided to adjust the laser system during an engagement between the laser system and a laser target.

28. A system for processing optical signals to correct for optical distortions, the system comprising:

a laser system;

a carrier system carrying at least the laser system;

a control system interacting with at least the laser system; and

a memory system interacting with at least the control system;

wherein the carrier system is configured to maintain the laser system to a first measurement condition;

wherein the laser system is configured to:

orient a first measurement laser beam at a first measurement angel;

send the first measurement laser beam to a first measurement focal point at a first measurement time;

receive a first measurement return signal in response to the first measurement laser beam;

adjust to a first measurement setting in response to the first measurement return signal;

wherein the control system is configured to

determine whether to send a second measurement laser beam to a second measurement focal point at a second measurement time;

communicate the determination to the laser system;

wherein the memory system is configured to store at least the first measurement setting and the first measurement time.

29. The system of claim 28, wherein the processes to orient, to send, to receive, and to adjust are performed free from an engagement of the laser system and a laser target.

30 The system of claim 29, wherein the processes to orient, to send, to receive, and to adjust are performed free from presence of a laser target.

31. The system of claim 29, wherein the laser system is further configured to:

during the engagement of the laser system and a laser target, adjust in response to the first measurement setting and the first measurement time.

32. The system of claim 29, wherein the laser system comprising:

a system of chemical oxygen iodine high energy laser;

a system of multibeam illuminator bench;

a system of beam transfer assembly; and

a system of turret assembly.

33. A method for correcting optical distortions in a laser system, the method comprising:

operating a laser system at a first time to emit a laser beam, the laser system including a laser source, a beam transfer assembly, and a lens assembly, the laser beam capable of traversing from the laser source, through the beam transfer assembly and the lens assembly, to a laser target;

retrieving a first correction setting from a memory system, the first correction setting corresponding to the first time;

adjusting at least one of the beam transfer assembly and the lens assembly in response to the first correction setting; and

sending the laser beam through the beam transfer assembly and the lens assembly to the laser target.

34. The method of claim 33, wherein the first time measures the operation period of the laser system.

35. The method of claim 33, wherein the direction from the laser system to the laser target is substantially vertical to the sea level.

36. The method of claim 35, wherein the angle between the direction from the laser system to the laser target and the direction vertical to the sea level ranges from 0 degree to 40 degrees.

37. A laser system, the system comprising:

a laser source;

an optical system coupled to the laser source; and

a database system coupled to the optical system and the laser source, the database system comprising:

a plurality of correction settings;

a plurality of correction times corresponding to the plurality of correction settings respectively; and

whereupon the plurality of correction settings capable of correcting for potential distortions in the optical system at the plurality of correction times respectively.

38. The system of claim 37, wherein the laser system is further configured to:

retrieving a first correction setting of the plurality of correction settings corresponding to a first correction time of the plurality of correction times;

during the engagement of the laser system and a laser target, adjust in response to the first correction setting at the first correction time.